IN THE CLAIMS:

1. (ORIGINAL) An intermediate network device having a plurality of ports for sending and receiving network messages to and from one or more entities of a computer network at least some of which are segregated into a plurality of virtual local area network (VLANs) defined within the computer network, the intermediate network device comprising:

a compact-Generic Application Registration Protocol (GARP) VLAN Registration Protocol (GVRP) application component associated with a selected port, the compact-GVRP application component having:

a GARP Information Declaration (GID) component configured to maintain VLAN registration state for the selected port in response to receiving attribute events for the VLANs;

a compact-GVRP encoder/decoder unit; and

a GVRP PDU message generator, wherein

the compact-GVRP encoder/decoder unit is configured to compute an encoded value, in accordance with an encoding algorithm, for the attribute events associated with a given set of VLANs, and

the GVRP PDU message generator loads the encoded values computed for all of the VLANs defined within the computer network within a single GVRP PDU message for transmission from the selected port.

2. (CURRENTLY AMENDED) An intermediate network device ~~node~~ as defined in claim 1 wherein the encoding algorithm is a number ~~based~~ base conversion algorithm.

3. (CURRENTLY AMENDED) An intermediate ~~node~~ network device as defined in claim 2 wherein the number base ~~based~~ conversion algorithm is $((((E_X \times 5 + E_{X+1}) \times 5 + E_{X+2}) \times 5 + E_{X+3}) \times 5 + E_{X+4}) \times 5 + E_{X+5}$ and wherein E_X corre-

sponds to the attribute event for the first VLAN in the set, E_{X+1} corresponds to the attribute event for the second VLAN in the set, E_{X+2} corresponds to the attribute event for the third VLAN in the set, E_{X+3} corresponds to the attribute event for the fourth VLAN in the set, E_{X+4} corresponds to the attribute event for the fifth VLAN in the set, and E_{X+5} corresponds to the attribute event for the sixth VLAN in the set.

4. (CURRENTLY AMENDED) An intermediate network device ~~node~~ as defined in claim 1 wherein the compact-GVRP encoder/decoder unit is configured to decode an encoded value contained in a compact-GVRP PDU message, that was encoded using the encoding algorithm, to yield attribute event information for a set of VLANs.

5. (CURRENTLY AMENDED) An intermediate network device ~~node~~ as defined in claim 1 wherein the compact-GVRP application component is configured to generate and send a GVRP PDU message containing a just_kidding message.

6. (CURRENTLY AMENDED) An intermediate network device ~~node~~ as defined in claim 5 further comprising:

a leave timer;

a just_kidding timer; and

a just_kidding state machine,

wherein upon sending the GVRP PDU message containing the just_kidding message the just_kidding state machine starts the leave timer and re-starts the just_kidding timer.

7. (CURRENTLY AMENDED) An intermediate network device ~~node~~ as defined in claim 6 comprising:

a leave_all timer; and

a leave_all state machine,

wherein upon expiration of the leave_all timer the leave_all state machine enters an active state and the compact-GVRP application component generates and sends a GVRP PDU message that is configured to cause network entities that receive it to respond with one or more GVRP PDU messages.

8. (CURRENTLY AMENDED) An intermediate network device ~~node~~ as defined in claim 7 wherein the leave timer is set to a high value relative to the leave_all timer.

9. (CURRENTLY AMENDED) An intermediate network device ~~node~~ as defined in claim 7 comprising:

a mode selection unit configured to be in one of a compatible mode, a fast compact mode or a slow compact mode,

wherein if after the compact-GVRP application component sends the GVRP PDU message containing a just_kidding message and the mode selection unit is either in the fast compact mode or the slow compact mode and the compact-GVRP application component receives a conventional GVRP PDU message, the mode select unit enters the compatible mode.

10. (CURRENTLY AMENDED) An intermediate network device ~~node~~ as defined in claim 7 comprising:

a port partner variable configured to hold a source identifier,

wherein upon processing a received GVRP PDU message containing a negotiation message with a source identifier the compact GVRP application component places the source identifier in the port partner variable.

11. (CURRENTLY AMENDED) An intermediate network device ~~node~~ as defined in claim 10 wherein upon processing a received GVRP PDU message containing a negotia-

tion message with a source identifier that does not match the content of the port partner variable, the compact GVRP application enters the slow compact mode.

12. (CURRENTLY AMENDED) An intermediate network device ~~node~~ as defined in claim 10 wherein upon processing a received GVRP PDU message containing a negotiation message with a source identifier that matches the content of the port partner variable, the compact GVRP application enters the fast compact mode.

13. (CURRENTLY AMENDED) An intermediate network device ~~node~~ as defined in claim 1 wherein the compact GVRP application component is configured to generate a mixed format GVRP PDU message containing a conventional attribute structure and a vector message.

14. (PREVIOUSLY PRESENTED) In an intermediate node having a plurality of ports for sending and receiving network messages to and from one or more entities of a computer network at least some of which are segregated into a plurality of virtual local area network (VLANs) defined within the computer network, a method for conveying VLAN membership information comprising the steps of:

for a set of VLANs defined within the computer network, computing an encoded value, in accordance with an encoding algorithm, for attribute events associated with the given set of VLANs; and

loading encoded values for all of the VLANs defined within the computer network into a single GVRP PDU message for transmission at one or more ports in the plurality of ports.

15. (PREVIOUSLY PRESENTED) A method as defined in claim 14 further comprising the step of:

decoding an encoded value, that was encoded using the encoding algorithm and is contained in a compact-GVRP PDU message, to yield attribute event information for a set of VLANs.

16. (PREVIOUSLY PRESENTED) A method as defined in claim 14 further comprising the steps of:

generating a GVRP PDU message containing a just_kidding message;

sending the GVRP PDU message containing the just kidding message out one or more ports of the plurality of ports; and

restarting a just_kidding timer.

17. (PREVIOUSLY PRESENTED) A method as defined in claim 16 further comprising the step of:

entering a slow compact mode upon the expiration of the just_kidding timer and the non-receipt of a conventional GVRP PDU message.

18. (PREVIOUSLY PRESENTED) A method as described in claim 16 further comprising the steps of:

entering one of a slow compact mode or a fast compact mode;

receiving a conventional GVRP PDU message; and

reverting to a compatible mode.

19. (PREVIOUSLY PRESENTED) A method as defined in claim 14 comprising the steps of:

receiving a first compact-GVRP PDU message wherein the first compact-GVRP PDU message contains a first source identifier.

20. (PREVIOUSLY PRESENTED) A method as defined in claim 19 comprising the steps of:

receiving a second compact-GVRP PDU message wherein the second compact-GVRP PDU message contains a second source identifier that does not match the first source identifier; and

entering a slow compact mode.

21. (PREVIOUSLY PRESENTED) A method as defined in claim 19 comprising the steps of:

receiving a second compact-GVRP PDU message wherein the second compact-GVRP PDU message contains a second source identifier that matches the first source identifier; and

entering a fast compact mode.

22. (PREVIOUSLY PRESENTED) An apparatus having a plurality of ports for sending and receiving network messages to and from one or more entities of a computer network at least some of which are segregated into a plurality of virtual local area network (VLANs) defined within the computer network, the apparatus comprising:

means for maintaining VLAN registration state for a selected port in response to receiving attribute events for the VLANs;

means for computing an encoded value, in accordance with an encoding algorithm, for attribute events associated with a given set of VLANs;

means for loading encoded values for all of the VLANs defined within the computer network into a single GVRP PDU message for transmission from a port in the plurality of ports.

23. (PREVIOUSLY PRESENTED) A computer readable medium comprising computer executable instructions for:

computing an encoded value, in accordance with an encoding algorithm, for attribute events associated with a given set of VLANs; and

loading encoded values for all of the VLANs defined within the computer network into a single GVRP PDU message for transmission from a port in the plurality of ports.